

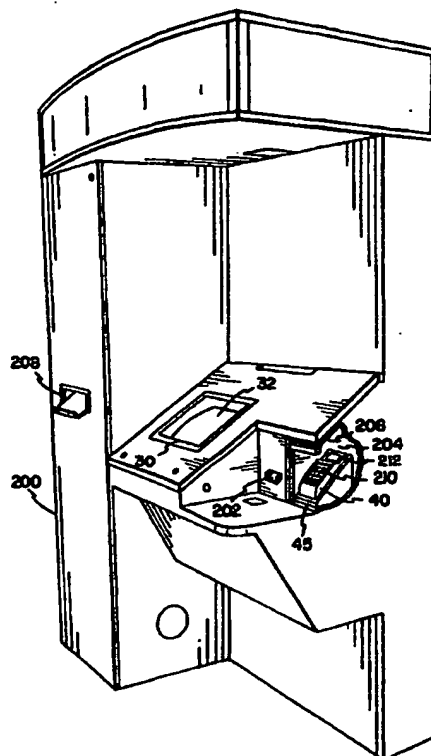


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(54) Title: GIFT REGISTRY APPARATUS AND METHOD**(57) Abstract**

Gift registry apparatus (200) provides registration of information for a gift registrant and allows access to the registry by potential gift giver users. The apparatus (200) is a network of computer terminals used in conjunction with a bar code scanner (40). A registrant provides personal information. The bar code scanner (40) is used to obtain product information on desired gifts. The personal information and the product information are associated together. The apparatus (200) is accessed by potential gift givers to obtain printouts of potential gifts for particular registrants.



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GIFT REGISTRY APPARATUS AND METHODFIELD OF THE INVENTION

5 The present invention relates to a self-service gift registry system using a portable bar code scanner and a computer system programmed, for example, to displace a traditional bridal gift registry.

BACKGROUND OF THE INVENTION

10 Traditionally, in the United States when a couple decides to marry, they will often go to particular stores and choose certain items which they would like to receive as gifts from other people at the
15 time that they marry. The gifts often relate to dinnerware, glassware, and silverware. Oftentimes many other possible gifts are identified as well. In any case, the particular store registers the name of the couple and the gifts that they desire. The register is
20 often nothing more than a log book. When a friend comes into the store and asks whether the couple has gifts registered, the store shows the friend the log book so the person can write down a listing of the gifts which were chosen by the couple. The friend can then purchase
25 one or more of the chosen items and give as a gift at the time of marriage.

 Traditional bridal registries are rather crude and time consuming, yet provide a service for couples to be married, as well as their friends. Furthermore,
30 registries create goodwill for the store and also a source of business. There is a need, however, for bridal registries to be more generally available for gift selection and purchasing for all types of events and to be more efficient and less labor intensive.

35

SUMMARY OF THE INVENTION

 The present invention is directed to apparatus for registering items selected by a first user for subsequent communication to a second user. The

apparatus includes programmable computer mechanism having first information about the first user as part of accumulated information relevant to the first user. The apparatus further includes an arrangement allowing the first user to browse among the items available for registration to identify a group of the items. The apparatus also includes a first mechanism for transferring to the computer mechanism second information regarding the group of items and for associating the second information with the accumulated information. The apparatus still further includes mechanism available to the second user for selectably obtaining accumulated information from the computer mechanism. The arrangement which allows the first user to browse among the items available for registration also allows the second user to browse, and based on the accumulated information, to identify a particular one of the group earlier selected by the first user. The apparatus then includes second mechanism for transferring to the computer mechanism third information regarding the particular one of the group chosen and associating the third information with the accumulated information.

In this way, more particularly, the general idea of the present invention is to allow a registrant or first user to provide information about himself/herself or for a couple to provide information about themselves to a properly programmed computer system. Then, the registrant walks about a store with a portable bar code scanner scanning bar codes of items that he/she/they would like as gifts. The bar code information is returned to the computer system and associated with the information on the registrant. It is preferable for the bar code scanner to include an LCD display in the apparatus so that mechanism for communicating scanned information to the computer mechanism and back functions with the LCD display to

allow appropriate information on the item for which the bar code was just scanned can be viewed by the first user to verify that a proper scanning was completed. A gift giving purchaser is able to access the computer system by providing, for example, at least a portion of the name of the registrant and/or wedding date or spouse name in order to obtain information on the desired gifts. In a further embodiment, when the purchaser actually purchases a gift, the bar code of the item is again read or information on the gift provided so that the information indicating that the gift has been purchased can also be registered and be available when another gift giving purchaser accesses the computer system.

15 In another preferred embodiment, the computer mechanism includes mechanism for associating the first information with an identification number. The bar code scanning mechanism includes mechanism for obtaining the identification number and transferring it along with the second information on the items chosen back to the computer mechanism so that the first and second information can be associated together using the identification number. Likewise, when the apparatus includes mechanism to provide purchase information, the identification number is again used so as to associate the purchase information with accumulated information on the various items.

30 In still another preferred embodiment, the apparatus comprises a network of computer terminal mechanisms. One of the computer terminal mechanisms receives first information about the first user and second information about the items. The network includes mechanism for associating the first information with the second information. Each of the computer terminal mechanisms in the network includes mechanism available for control by the second user for obtaining the first and second information associated together.

In this way, a registrant can enter information about himself/herself at a computer terminal. The registrant can then walk the store and scan bar codes of desired gifts. Mechanism is available to allow transfer
5 of the bar code information back to the network. The network provides for associating the information on the registrant along with the bar code information on the desired gifts so that the associated information can be accessed by a potential gift giver at any of the
10 computer terminals which are a part of the network.

The method for registering items in accordance with the present invention comprises the steps of entering information about the first user in computing mechanism, reading bar codes with a bar code scanner to
15 obtain information about desired items, causing the two types of information to be communicated to the computing mechanism for association together, and accessing by the second user the associated information for use for possible purchase of gifts for the first user.

20 These various embodiments and method will become more clear on consideration of the drawings and the detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

25 FIGURE 1 is a block diagram representative of registry apparatus in accordance with the present invention;

FIGURE 2 is a block diagram representative of an alternate embodiment of registry apparatus in
30 accordance with the present invention;

FIGURE 3 is a block diagram representative of a second alternate embodiment of registry apparatus in accordance with the present invention;

35 FIGURE 4 is a block diagram representative of a registry network system in accordance with the present invention;

FIGURE 5 is a flow chart representation of the steps taken by a registrant user of the registry apparatus in accordance with the present invention;

FIGURE 6 is a flow chart representation similar to FIGURE 5 of an alternate embodiment of the steps which may be taken by a registrant user;

FIGURE 7 is a flow chart representation of the steps taken by a purchaser user of the registry apparatus in accordance with the present invention;

FIGURE 8 is a flow chart representation of an alternate embodiment of the steps which may be taken by a purchaser user;

FIGURE 9 is an illustration of a representative printout for a purchaser user;

FIGURE 10A-G are a series of illustrations representing screen images that are displayed to a registrant user or a purchaser user;

FIGURE 11 is a perspective view of a kiosk housing usable in accordance with the present invention; and

FIGURES 12A-B are a flow chart representation of steps taken by a registrant to obtain a portable bar code scanner from a housing like that shown in FIGURE 11 and return it.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the drawings, preferred embodiments of the present invention are disclosed. Like numerals throughout the several views identify like features with like numerals being primed in alternate embodiments. It is understood that other embodiments may also be possible and may be utilized without departing from the scope of the present invention.

Apparatus in accordance with the present invention is designated generally by the numeral 20 in FIGURE 1. Apparatus 20 is illustrated to include computer mechanism 22 and bar code scanning mechanism 24

for obtaining Universal Product Code (UPC) information about possible gift items. The UPC information allows the computer mechanism to categorize products or, in this case, potential gift items, so that a gift buyer
5 can have the option of obtaining a list of gifts of a particular category.

The scanning mechanism 24 includes not only the bar code reading feature, but also mechanism for transferring the information to computer mechanism 22.
10 Bar code scanning mechanism 24 includes a bar code scanner 40 and can include a holder 44 with locking mechanism 46 which unlocks only when card reader 36 has appropriately read a magnetically encoded card, such as a credit card. Holder 44 can include a transfer device
15 45 which reads the memory of bar code scanning mechanism 24 for communication to computer 26. The various electrical connections and locking/unlocking mechanism for use with the bar code scanning mechanism are conventional.

20 It is noted that scanning mechanism 24 is a key feature of an arrangement which may also include a card reader 36 which functions as a key to unlock scanning mechanism 24 as discussed in more detail hereinafter. Such arrangement allows the registrant to browse among
25 possible gift items to identify a group of the items which she/he/they desire as gifts. After registration is completed by a registrant, although a potential gift purchaser may not personally use the scanning mechanism 24 as a part of the arrangement which allows the
30 potential gift purchaser to browse among the group of items selected by the registrant to identify a particular one of the group for purchase, it is likely that a store clerk will scan bar codes or otherwise obtain necessary information for transfer to computer
35 mechanism 22 regarding items purchased.

Computer mechanism 22 includes printer 34 and computer 26, as well as interface mechanism 28

comprising monitor 30 and touch screen 32. Computer mechanism 22 also includes software program mechanism. Computer 26 preferably has a modem 37 for communication with a central processing mechanism as described more
5 fully with respect to FIGURE 4. Alternatively, modem 37 could connect to a network or to a mainframe. A keyboard port 38 is available on computer 26 to provide various servicing functions.

The program mechanism includes first mechanism
10 for receiving the first information about the registrant user and second mechanism for receiving the second information about possible gift items. The program mechanism also includes mechanism for associating the first and second information. In addition, the program
15 mechanism includes mechanism for obtaining the first and second information which has been associated together.

Computer mechanism 22 and bar code scanning mechanism 24 in conjunction with program mechanism preferably further include mechanism for verifying by
20 the registrant that the items on which information has been entered are those desired by the registrant as a result of being able to review at least some of the information obtained from scanning the bar codes. The verifying mechanism includes display mechanism 212 (see
25 FIGURE 11) which is a part of or mounted on the bar code scanner 40.

A kiosk representative of a housing 200 appropriate for containing the various mechanisms is depicted in FIGURE 11. The computer terminal mechanism
30 is not visible, but is contained within the housing. Monitor 30 with touch screen 32 is located approximately waist high at an incline approximately perpendicular to the line of sight of a user's eyes. An access opening 202 for card reader 36 (not shown) is provided. Bar
35 code scanner 40 is held on a transfer device 45 in a compartment 204 having a sliding door 206. Preferably a sensor (not shown) would sense when bar code scanner 40

is physically present on the transfer device 45. Preferably, there would also be sensors (not shown) which would sense when door 206 is open and when door 206 is closed. The sensors would provide triggering
5 signals with respect to screens appearing on the monitor to instruct the user. Appropriate sensors and sensing circuits are known by those skilled in the art.

Kiosk 200 is also useful for dispensing gift certificates. When functioning to dispense a gift
10 certificate, the certificate is dispensed at opening 208. Likewise, printouts requested as part of the gift registry are also dispensed from opening 208. Thus, with the two functions possible using the same housing 200, it is possible to provide a reward in the form of a
15 gift certificate to the gift registry registrant as an acknowledgement for using the apparatus. The gift certificate function is more fully explained in U.S. Patent 5,243,174, herein incorporated by reference. Bar code scanner 40 is portable and preferably, although not
20 required, includes a keyboard 210 and an LCD screen 212. The keyboard can be used to enter the identification number or an equivalent UPC number of a bar code which does not scan. The keyboard can also be used to enter purchase information after a purchaser makes a purchase.
25 As indicated, the LCD screen is available for immediate verification that the correct bar code was scanned with respect to the item desired. An acceptable portable bar code scanner for the present apparatus is Symbol Model LDT 3805. The particularly novel characteristic of
30 apparatus 200 is that it allows the gift registry system to be a complete self-service system up to the point of purchase of a gift by the second user or gift buyer.

With respect to the gift registrant taking the portable bar code scanner to browse the store, a
35 preferred form of security is that the registrant would provide a credit card to opening 202 to be read. Credit on the credit card account would be checked and a

predetermined sum, for example \$200, would be debited to the account before releasing the scanner. When the account was verified, credit found to be available, and the debit made, door 206 would either automatically open or, at least, would unlock and a prompt would appear on the monitor for the registrant to open the door and take the scanner. When door 206 was sensed to be open, another prompt could appear on the monitor for the registrant to take the bar code scanner 40. When it was sensed that the bar code scanner was no longer present, door 206 would automatically close and lock or the registrant would be prompted to close the door. After the registrant had completed use of the scanner 40, either an appropriate indication would be made on a menu at monitor 30 or the credit card could once again be inserted and read, whereupon appropriate menus would instruct the registrant to open door 206 and place scanner 40 properly on the charging stand and transfer device 45. The physical presence of scanner 40 would be sensed. An appropriate communication would be made between the terminal computer or the central processing computer and the scanner to verify that it was placed properly. Door 206 would then automatically close or a prompt would be given for the registrant to close the door. When the door was sensed to be closed, the credit card account would be credited an equal amount as the earlier debit, and the registrant would be informed of such action and thanked for registering gifts in the registry.

Alternatively, the portable bar code scanner is in the possession of the retail store. In this case, when a registrant wishes to register gifts in the registry apparatus, a store clerk requires, for example, cash, a credit card, driver's license, or something equivalent as security for giving the bar code scanner to the registrant user.

After the user has initiated apparatus 20 by entering first information on himself/herself in the computer, he/she walks around the store with the bar code scanner. Second information obtained from the bar codes scanned on the desired items, is communicated to the computer. In this regard, as shown in FIGURE 2, bar code scanner 40' with memory/storage preferably includes a transmitter 52 which through radio, infrared, or other electromagnetic frequencies sends encoded information to receiver 54 for downloading to computer 26'. Other elements of apparatus 20' are similar to those of apparatus 20, for example, printer 34', monitor 30' and touch screen 32'. Alternatively, the communication mechanism could be removable storage media 42, for example, a commonly known floppy disk, which could be removed from the scanner and inserted in retrieving mechanism 48 in the computer, such as the usual floppy disk receiving slot and related mechanism.

A further alternative is shown in FIGURE 3. Bar code scanner 40'' includes a modem 56 or is connected to a modem as part of a transfer device (like 45). Modem 56, in a conventional fashion, connects through a public telephone channel to modem 37'' of computer 26''. Apparatus 20'' is also likely to include some or all of the other elements of apparatus 20, such as printer 34'', monitor 30'', and touch screen 32''.

Apparatus 20'' is an interesting embodiment in that conceivably bar code scanner 40'' could be located in the first user's home. Appropriate first information on the user could be entered into computer 26'' in various ways, such as through a home personal computer with a modem connection to the store computer, by orally giving the first information over the telephone to a person entering it into the store computer 26'', or by the first user entering the first information into computer 26'' when the first user registrant is visiting the store. In any case, the store could send a catalog

to perspective users. The catalog, as well as showing various items available, could include bar codes for those items. In that way, the bar code scanner could be used to scan bar codes of interest in order to enter
5 appropriate second information as indicated via apparatus 20''. The second information would be sent to computer 26'' via the connection which can be made between the modems. Likewise, a shopper second user could select a gift from the catalog and communicate
10 appropriate information, including the second information obtained from scanning the bar code, via the connection between the modems. In the usual way that business is conducted with respect to catalog sales, the gift item would be sent to the shopper second user.

15 In the preferred of these various embodiments, with reference to FIGURE 1, computer 26 is an IBM PC or compatible computer with at least 2 megabytes of dynamic memory. Monitor 12 is a standard Super VGA Monitor capable of displaying 640 x 480 pixels at 256 colors per
20 pixel. Touch screen 14 is an Elographics Intellitouch model 4001 Surface Acoustic Wave Touch Screen with Touch Screen Controller. Card reader 16 is a Magtek Swipe M%211232 magnetic card reader connected to computer 26 through an RS232 line. Laser printer 36 is a Canon LBP4
25 laser printer. Modem 42 is a 9600 Baud Multitec 10 Model MT 1432 error correcting modem. Bar code scanner 40 is a Symbol model 3805.

Holder 44 functioning as a transfer device is a Symbol CBM 38bb Cradle Base Module. In the embodiment
30 of FIGURE 2, transmitter 52 is a Symbol model LRT3805, while receiver 54 is a Symbol Spectrum 1 radio frequency network. All these items are commercially available as is known to those skilled in the art.

Registry apparatus 20 operates independently as
35 shown in FIGURES 1-3, or within a network as shown in FIGURE 4. Network 58 provides for numerous apparatuses 20 depicted in the form of branch computers 60 with bar

code scanners 62. Apparatuses 20.1 through 20.N are connected as known to those skilled in the art through public telecommunications channel 64 to a central processing computer 66. Alternatively, they could be
5 connected to central processing computer through a Local Area Network (LAN) or Wide Area Network (WAN). Central processing computer 66 is connected to a printer 68 for printing various transactions, as desired. In the preferred embodiment, central processing computer 66
10 could be a PC compatible computer and printer 68 is a laser printer of the type indicated hereinbefore. With a network 58, the registrant first user can input first and second information in any of the fashions indicated with respect to any of the terminal computer mechanisms
15 20.1 to 20.N. The association of the first and second information can take place in a particular computer mechanism 20.N or it can take place in the central processing computer 66. Regardless of where the association occurs, the associated information is stored
20 in the memory or available storage of central processing computer 66. In that way, any one of computing mechanisms 20.N can be accessed by a second user in order to obtain the associated first and second information as desired.

25 It is noted that network 58 can also access a credit card authorization computer 70 in a known fashion through public telephone channels 64. This may be desirable to validate particular registrants, and as indicated, is useful in debiting an account as security
30 for the bar code scanner with a subsequent credit when the scanner is returned.

Flow charts depicting a registrant user's use of the gift registry apparatus in accordance with the present invention are shown in FIGURES 5 and 6. With
35 reference to FIGURE 5, the registrant approaches the gift registry apparatus and as indicated at box 72, the registrant enters first information about

herself/himself/a couple. The gift registry apparatus as indicated at box 74 receives the first information and provides either on the monitor or by printout a unique identification number and a password for the particular registrant. Alternatively, the registrant could be given an option of providing a password. The identification number enables association of first and second information. The password is needed so that the information contained in the registry apparatus which is relevant to the particular registrant can only be modified by someone who knows the password. Accumulated information can be accessed by any potential gift giver who simply knows the name of the registrant.

As indicated at box 76, the registrant obtains the identification number and password and requests the bar code scanner. In the presently discussed embodiment, the store retains control of the bar code scanner, so that as indicated at box 78, it is the store which provides the bar code scanner to the registrant on her/his request. As indicated at box 80, the registrant then scans the identification number in the form of a unique bar code and walks about the store scanning bar codes of desired gift items to obtain second information. Alternatively, the identification number could be provided to the bar code scanner by the computer through the transfer device or could be manually entered at the scanner keyboard. When the registrant has completed scanning the bar codes of all the items which she/he may wish to receive as gifts, as indicated at box 82, the registrant returns the scanner to a store clerk. The store clerk, as indicated at box 84, places the scanner in the transfer device so that the second information can be downloaded to the computer. As indicated at box 86, the gift registry apparatus receives the second information and, as indicated at box 88, it associates the first and second information together. As indicated at box 89, the gift

registry apparatus can be on-line to databases which include UPC data and current prices.

The flow charts of FIGURES 12A and 12B depict an alternative to the store providing the bar code scanner to the registrant (see also FIGURE 11). Just as indicated at box 72 in FIGURE 5, the first step, as indicated at box 214 is for the registrant to enter first information about herself/himself/the couple. As indicated at box 216, the first information is received by apparatus 20 and a prompt given for the registrant to supply a credit card or other appropriate unlocking mechanism. At box 218, the registrant passes the magnetic card through the card reader. At box 220, the account represented in the information read from the card is validated and, assuming that there is credit available, a hold is placed against a predetermined amount of credit as security for the bar code reader. In the preferred embodiment, as indicated at box 222, the unique identification number is transmitted to the bar code scanner. Then, at box 224, the door 206 is unlocked and registrant is prompted to open it. As indicated at box 226, the registrant opens the door. At box 228, apparatus 20 senses that the door is open and prompts registrant to take the scanner. As indicated at box 230, registrant takes the scanner, closes the door according to instructions, and acknowledges that the scanner has been taken. At box 232, the door is locked. At box 234, it is indicated that the registrant is then free to browse among possible gift items and scan bar codes for second information. The flow chart of FIGURE 12A, as described, corresponds with the flow chart of FIGURE 5 inclusive of boxes 72-80.

The flow chart depicted in FIGURE 12B relates to the registrant returning the bar code scanner and having a credit placed against the debit which was earlier posted to the credit card account. As indicated at box 236, registrant first identifies or registers a

desire to return the scanner. At box 238, the door 206 of compartment 204 is unlocked and the registrant is prompted to open the door and return scanner. Depending on the construction of housing 200, door 206 may

5 automatically open and close as appropriate or there may be prompts for the registrant to physically open and close the door. At box 240, registrant replaces the scanner. At box 242, replacement of the scanner is sensed and apparatus 20 makes a communication with the

10 scanner to insure that it has been properly placed for recharging and downloading of second information. The door is either automatically closed or a prompt is given to the registrant to close the door. At box 244, the hold is placed against the credit card account is

15 removed. At box 246, the registrant is thanked and monitor 30 reverts to the welcome screen. At box 248, apparatus 20 downloads the second information from the scanner to the appropriate computer for association with other accumulated information regarding that registrant.

20 The flow chart of FIGURE 12B corresponds with the inclusive boxes of 82-86 in FIGURE 5. The subsequent portion of FIGURE 5 is still appropriate. In that regard, rather than the monitor reverting to the welcome screen, it may allow the registrant to review the

25 accumulated information for any changes. Based on the indicated method of FIGURES 12A and 12B, the computer terminal is programmed appropriately and present screens such as those shown in FIGURES 10F and 10G.

The procedure discussed thus far is sufficient

30 for a useful gift registry system. With references to FIGURES 7 and 8, a gift buyer could now approach the system and obtain desired information as indicated in the flow charts of FIGURES 7 and 8. Nevertheless, there are further advantageous steps available. It is

35 desirable, as indicated at box 90 of FIGURE 5, that the registrant reviews the associated first and second information for correctness. If there is incorrect

information or if the registrant wishes to delete certain information or enter new information, the apparatus may be again accessed by using the identification number and password and making

5 appropriate changes. After the review and any changes have been made, the gift registry apparatus receives an indication from the registrant that the review has been made and completed. As indicated at box 92, it is then possible to optionally reward the registrant for taking

10 the time and trouble to provide all this information to the gift registry apparatus of a particular store. The apparatus can be made capable to provide the reward to the registrant in the form of a store gift certificate, which may be pre-printed, or credit for a more general

15 gift certificate selection as disclosed in U.S. Patent 5,243,174. As indicated at box 94, the registrant receives the gift certificate and can thereafter redeem it in a usual fashion.

The flow chart of FIGURE 6 has many

20 similarities to that of FIGURE 5, but there are also significant differences. As indicated at box 72', the registrant registers first information about herself/himself/the couple. As indicated at box 74', the gift registry apparatus receives the first

25 information and provides the unique identification number. As indicated at box 76', the unique identification number is obtained. Then, as indicated at box 96, the registrant obtains the bar code scanner as otherwise indicated herein. The registrant, as

30 indicated at box 80', then scans the unique identification number in bar code form and walks the store scanning bar codes of desired gift items to obtain second information. The registrant finally, as

35 indicated at box 98, returns the bar code scanner to the holder so that, as indicated by broken line 100 leading to box 102, the second information can be transferred from the transfer mechanism of the holder to the gift

registry apparatus. Alternatively, as indicated by solid line 101, the second information can be transmitted by radio frequency to the gift registry apparatus and the bar code scanner then returned to its holder. As indicated at box 88', the apparatus associates the first and second information. As with the earlier described procedure, the present procedure could be ended with box 88'. As indicated in FIGURE 6, however, there are further advantageous alternatives.

The gift registry apparatus network can be in on-line communication to databases which include current Universal Product Code (UPC) data, as well as current prices. Such information when associated with the first and second information of the registry then allows the registry apparatus to categorize desired gift items by price or price range so that potential gift buyers can obtain price information or can obtain desired gifts of a certain price range. Additionally, the price information can be continually updated and, consequently, kept current with the information that is in the databases. The on-line communication is indicated at box 104. Additionally, as previously indicated immediate communication in conjunction with a bar code scanner having an LCD display 212 (see FIGURE 11) can provide information on the display immediately after the bar code of a particular item has been scanned so that the user can verify from the information displayed whether the correct bar code was scanned and entered.

As with the procedure of FIGURE 5, as indicated at box 90', it is also desirable to have the registrant review the associated first and second information, and perhaps price information. As indicated at box 92', the gift registry apparatus receives the review indication and prints or otherwise dispenses a gift certificate. As indicated at box 94', the registrant receives the gift certificate. In a somewhat different procedure

than indicated with respect to FIGURE 5, as indicated at box 106, the registrant could after receiving the gift certificate provide any changes to the first and second information so that as indicated at box 108, the gift registry apparatus would at that time receive the changes.

The procedure for using the gift registry apparatus which is followed by potential gift buyers is shown in FIGURES 7 and 8. With reference to FIGURE 7, a gift buyer first approaches the gift registry apparatus, and as indicated at box 110, identifies the registrant. There can be further verification steps, such as also identifying the wedding date or the future spouse's name. As indicated at box 112, the gift registry apparatus provides access to the gift buyer so that the gift buyer can obtain associated first and second information. As indicated at box 114, the gift buyer is given various menu options from which to select information for printing. As indicated at box 116, when an appropriate option has been selected, the gift registry apparatus prints the selected information. As indicated at box 118, the potential gift buyer receives the printout, walks the store and selects desired gifts, and then checks the gifts purchased on the printout or has the store clerk identify the gifts purchased so that, as indicated at box 120, the store clerk can update information in the gift registry apparatus. The update may be done at a terminal located in the store accessible to the clerk or could be located at a remote site wherein someone receiving the appropriate gift purchase information could do the update. In any case, as indicated at box 122, the gift registry apparatus receives the updated information and associates it with the first and second information.

A representative printout as referenced at box 118 is shown in FIGURE 9. The printout indicates the names of the woman and man getting married and their

wedding date. It further indicates the registrant identification number, which is the same as the number discussed hereinbefore. Then, the printout 119 preferably includes several columns, such as, the number
5 of the particular gifts "wanted" and "received". The printout as shown also includes the item number of the particular gift as assigned by the gift registry apparatus relative to all the rest of the desired gifts by the registrant. In the example shown, the item
10 number is eighteen. Then, preferably, there is a column providing a space wherein the gift buyer or the store clerk would indicate with a check mark or with a number, the fact of purchase or the number of items of that particular gift purchased by the gift buyer. There is
15 preferably a description column and also a UPC number column. In any case, by using a printout of this general type, a physical record of items purchased can be maintained until someone can update the information in the gift registry apparatus to show that the
20 particular gift has been purchased.

An alternative procedure is shown in FIGURE 8. The gift buyer identified the registrant at box 110'. The gift registry apparatus, as shown at box 112' provides access to the gift buyer in order that the gift
25 buyer can obtain associated first and second information. As shown at box 114', the gift buyer selects appropriate information for printing. As shown at box 116', the selected information is printed. As shown at box 124, the gift buyer receives the printout,
30 selects desired gifts, and he/she or a store clerk uses a bar code scanner to scan bar codes of items purchased to obtain third information. In this regard, in an advanced system, the store clerk could use the same bar code scanning mechanism that is used in checking items
35 at the purchase counter for payment. For example, there may be a code to enter or a button to touch which would initiate a software routine allowing receipt of the

third information simultaneous with other use of the information with respect to check-out. The third information would be transferred as appropriate to the central computer of apparatus 20. To provide
5 appropriate information, the identification number would be scanned or entered. Then the third information including the bar code or other identifying information of the item and the quantity of the particular item purchased is entered. Depending on the programming, the
10 third information is then appropriately communicated and by using the identification number is associated with other accumulate information. As indicated at box 130, the gift registry apparatus receives the third information and, as indicated at box 132, the third
15 information is associated with the first and second information.

Alternatively, the third information can be transmitted by radio frequency as discussed hereinbefore directly from the bar code scanner to the computer
20 terminal and immediately associated with the first and second information. Such procedure is indicated by the solid arrow 134 extending from box 124 to box 130.

Gift registry apparatus 20 is programmed as known to those skilled in the art based on the
25 representative screens of FIGURES 10A-G. Particular branch computers 60 (see FIGURE 4) use a DOS operating system, are programmed with C++ program language, and make use of dBase database or SQL files for data storage. The central processing computer 66 uses an
30 OS/2 operating system.

With reference to FIGURES 10A-G, as indicated at box 136, the first screen of the program welcomes a user to the "XYZ Gift Registry". The user is given the option of accessing the "registry" or proceeding with
35 "registration". The instruction is given to touch one of the regions indicated.

Most screens include an option for the user to request "help" and will not be further discussed.

If the user touches "registration", then the screen represented by box 138 appears. The registrant
5 user is given the opportunity to select between the options of "new registration", "update previous registration", "release bar code scanner", or "return bar code scanner".

Beginning with box 138, most screens in
10 addition include the option of touching a region entitled "previous screen", which if touched, would result in the previous screen appearing so that the user could then proceed in accordance with the previous screen. Since this option is also available on most
15 screens except the final processing and thank-you screens, it also will not be any further discussed.

If "new registration" is touched, control proceeds to screen 140. Screen 140 provides the registrant user the option of providing information
20 relating to "wedding date", "bride's name", or "groom's name". If the bride's name or the groom's name is selected, control proceeds to the screen represented by box 142. It is understood that box 142 is representative with respect to different screens for the
25 groom and for the bride as appropriate. In any case, the registrant user now has the option to provide information relating to name, address, city, state, zip code, day time phone and evening phone. When all the information has been provided, there is the additional
30 option of touching the region identified by the word "done". In that way, control can proceed after all information is entered back to box 140. Depending on the item of information to be provided, control proceeds from box 142 to box 144 so that the appropriate
35 information can be entered. The information to be entered is identified in the space marked "variable". As information is entered by depressing either numbers

or letters, the appropriate information appears following the colon after the variable information. There may also be space and erase or backspace options. When all the information for the particular variable has
5 been entered, the registrant user touches "done" and control returns to box 142. After the bride's name and the groom's name information has been entered or if the wedding date option is selected, control proceeds as indicated by a bubble "B" to box 146 shown in FIGURE
10 10B. Again, the registrant user is presented with options for providing information, such as, wedding date, location, city, state, shower date number 1, and shower date number 2. Depending on the option selected, control either proceeds to box 148 or to box 144 as
15 indicated by bubble "C". If control proceeds to box 144, then on the touching of "done", control will return to box 146. Assuming control proceeds to box 148, the variable "wedding month" is indicated and the option of the various 12 months is provided. When one of the
20 months is touched, the month will appear following the colon. There is an option to touch "month not determined". After one of the months or the month not known option is touched, control proceeds to the screen represented by box 150. Alternatively, there is also
25 the option to touch "done" whereupon, control returns to box 146. At the screen represented by box 150, the registrant user is shown the variable "wedding date" and is provided the option of touching dates ranging from one to the total number of days in the particular month
30 of the wedding month previously selected. If a date has not yet been determined, that option is also provided. There is further the option to touch "done" whereupon control returns to box 146. If a date is provided or if the date not determined is touched, control proceeds to
35 the screen represented by box 152. Box 152 displays the variable "wedding year" and the registrant user is given the option of selecting from among various years. After

a year has been touched, control returns to box 146 as indicated by bubble "B". Additional information can be provided until all appropriate information is provided for box 146. At that point, the registrant user touches
5 "done" and control will go to a screen (not shown) which thanks the registrant user for providing the information and can give as many instructions as are deemed desirable in order to teach the registrant user what to do next in completing the procedures of FIGURES 5 or 6.

10 If the registrant at the screen represented by box 138 touches "update previous registration", then control proceeds as shown by bubble "E" to the screen represented by box 172 in FIGURE 10E. Screen 172 requests the registrant's number and password and
15 provides appropriate regions in which to touch letters or numbers until the entire registrant number and password is shown following the colon. At that point, the registrant touches "done" and, if the number and password are correct, control proceeds to the screen
20 represented by box 174. If either is incorrect, a screen could appear which tells the user that the number or password is incorrect and that the user will be given another chance to enter them. At that point, screen 172 would reappear. If the incorrect number or password
25 were entered again, control would revert to the welcome screen of box 136.

The screen represented by box 174 provides a series of options which identify items of information requiring correction. The registrant touches one of the
30 items, and control proceeds to an appropriate screen such as might be found in FIGURES 10A or 10B. If the option selected is a "gift listing", then control would proceed to a screen like that of box 176. After all items requiring correction have been corrected, the
35 registrant touches "done" and a screen thanking the registrant could appear before control reverts to the welcome screen of box 136. Additionally, there could be

an intermediate screen which not only thanked the registrant, but explained that a gift certificate was being presented to her/him for completing the registration task. While the screen was available for viewing, the gift certificate could be printed or otherwise dispensed. Alternatively, a credit could be registered, and the registrant could be given a capability of accessing a gift certificate dispensing routine of the type disclosed in U.S. Patent 5,243,174.

At box 176, the registrant is given the option to "delete gift" or "change quantity of gift". Regardless of which option is selected, control proceeds to the screen of box 178 where the appropriate gift number is entered. On completion of entry, "done" is touched. If the option was to delete the gift, control would then revert to box 174. If the option was to change quantity of gift, then control proceeds to the screen represented by box 180. At box 180, a new quantity for the gift is entered. Thereafter, "done" is touched and control reverts to box 174.

As indicated, after all information requiring correction has been corrected, "done" is touched at box 174 and control either immediately reverts to the welcome box 136 or does so after providing a gift certificate as discussed, depending on the option of the system.

If the user who approaches the gift registry apparatus touches "registry" on the first screen as represented by box 136, control proceeds as indicated at bubble "A" to box 154. The potential gift user is given the option to touch "bride's name" or "groom's name". Control then moves to screen 156 or alternatively to screen 158. The screen represented by box 156 provides the option of touching the date of the wedding. In addition, options to scroll to earlier or later dates is also provided. When a date has been touched, control proceeds to box 158 where the bride's or groom's last

name is requested and an alphabet is provided so that letters can be touched and the name typed. When the name is completed, the user touches "done" and control proceeds to the screen represented by box 160. Since

5 the last name has been provided in 158, box 160 provides a series of names in the registry which are identical to or similar to the name provided by the user. The user then has the ability to see the first name and perhaps a middle initial. The user can then more positively

10 identify the name of the person who is presumably known to the user. The screen also provides the capability to scroll up or down so that more names can be viewed. After a name has been touched, control proceeds to the screen represented by box 162. Box 162 allows the user

15 to confirm the wedding of interest by touching "yes" or "no". The box shows the name of the bride, the name of the groom, and the date of the wedding. If "no" is touched, control reverts to box 154. If "yes" is touched, control proceeds as indicated by a bubble "D"

20 to box 164 shown in FIGURE 10D. The screen represented by box 164 gives the potential gift giver user the option to select from among various classifications of gifts or all registered gifts or gifts having a certain price maximum or range or some other similar option.

25 The screen also provides the option to scroll up or down to view more options. When a particular option has been touched, control proceeds to the screen represented by box 166. Box 166 shows the gift items desired by the registrant for the particular category selected. The

30 screen preferably includes the number of a particular gift wanted and also the number already purchased. In that way, the potential gift giver can more knowledgeably select an appropriate gift. The screen also provides the ability to scroll up or down. The

35 screen provides the user the option to touch "print registry" or "print page". If the print registry option is selected, all gifts in the registry for the

particular registrant are printed. If the option to print the page is selected, then all gifts which can be accessed by scrolling up or down on that particular screen are printed. If the user does not want to print, the option "help" can be touched. A "help" routine is not provided herein, but could easily include the option to terminate use of the registry so that control would revert to the welcome screen represented by box 136. Assuming a print option is selected, control proceeds to a screen represented by box 168. Box 168 simply indicates the amount of time still needed to complete the printing job. Screen 168 requires no action on the part of the user, but rather is informational to the user. After the time has expired so that the printing is completed, control proceeds to the screen represented by box 170. Box 170 thanks the user and instructs her/him to take the printed gift list, use it and return it to a cashier when a purchase is made. Screen 170 remains visible for a predetermined time and then control reverts to the welcome screen represented by box 136.

In a case when a registrant has the capability of taking the bar code scanner from a kiosk housing, the registrant is greeted as indicated by the welcome screen 136. The registrant presses registration and screen 138 appears. If it is a new registration, the new registration portion of screen 138 is pressed and the various screens relating to registering as earlier described appear. Similarly, a registrant can update a previous registration. Of interest at the moment, is the self-service feature which allows the registrant to take the portable bar code scanner. With this in mind, the registrant presses "release bar code scanner". As indicated by the circle "F", the next screen is represented at box 250 in FIGURE 10F. Screen 250 prompts the registrant to insert a credit card. It indicates that a debit will be placed against the credit

card account as security for the scanner, but that a credit will be given when the scanner is returned. After that is done, at box 252, a screen is indicated to instruct the registrant to open the door and remove the scanner. At box 254, the registrant is instructed to closed the door and touch a key to acknowledge. At box 256, the monitor can provide whatever instructions are appropriate. The present screen simply indicates to the registrant that she/he/they are now free to scan bar codes of items which they wish to receive as gifts. They are given the further instruction on how to return the scanner and receive credit. As indicated with the circle "A", control then reverts to the welcome screen 136.

When the registrant is ready to return the scanner, the "registration" portion of welcome screen 136 is again touched. At screen 138, "return bar code scanner" is touched. Control then reverts as indicated at circle "G" to the representative screen shown in FIGURE 10G. At box 258, the registrant is instructed to insert a credit card. The further instruction is given to use the same card as was used when the scanner was earlier taken so that the proper account can be credited for the scanner return. At box 260, the registrant is instructed to open the door and replace the scanner. After apparatus 20 senses that the scanner has been properly replaced, the registrant at box 262 is instructed to close the door. When the door is sensed to have been closed, at box 264, the registrant is told that the credit card account has been credited and is thanked for using the gift registry. Control then again reverts to the welcome screen.

It is understood that the various screens presented are representative and that more or less information may be provided. It is further understood that fewer or more options may be made available to the user in accordance with the previously disclosed

procedures to provide the full capability contemplated by the system. As a consequence, it is understood that equivalents are possible within the spirit of the present invention and that changes made from the present disclosure, to the full extent extended by the general meaning of the terms in which the appended claims are expressed, are understood to be within the principle of the invention.

WHAT IS CLAIMED IS:

1. Apparatus for registering items selected by a first user for subsequent communication to a second user, said apparatus comprising:

5 programmable computer means having first information about said first user as part of accumulated information relevant to said first user;

 an arrangement allowing said first user to browse among said items to identify a group of said
10 items;

 first means for transferring to said computer means second information regarding said group of said items and associating said second information with said accumulated information;

15 means available to said second user for selectively obtaining accumulated information from said computer means;

 said arrangement also allowing said second user to browse among said group and based on said accumulated
20 information to identify a particular one of said group; and

 second means for transferring to said computer means third information regarding said particular one and associating said third information with said
25 accumulated information.

2. Apparatus in accordance with claim 1 wherein said obtaining means includes means for printing at least some of said accumulated information associated
30 together.

3. Apparatus in accordance with claim 1 including means for providing a reward to said first user as an acknowledgement for using said apparatus.

35

4. Apparatus for registering items selected by a first user for subsequent communication to a second

user, said items being identifiable with bar codes, said apparatus comprising:

programmable computer means providing means for receiving first information about said first user; and

5 means for scanning bar codes, said scanning means including means for obtaining second information about said items which are desired as gifts and as yet unpurchased and means for transferring said second information to said computer means and associating with
10 said first information, said bar code scanning means including a portable bar code scanner;

said computer means and said scanning means including means for verifying by said first user that said items are those desired by said first user based on
15 said second information as obtained from scanning said bar codes, said verifying means including display means mounted on said bar code scanner, said computer means further including means for retrieving the information associated together.

20

5. Apparatus in accordance with claim 4 wherein said portable bar code scanner has memory, said transferring means including a transmitter and a receiver, said transmitter being integrated with said
25 bar code scanning means and said receiver being integrated with said computer means.

6. Apparatus in accordance with claim 4 wherein said portable bar code scanner has memory, said
30 transferring means including a transfer device with means for connecting to said bar code scanner, said transfer device completing a communication link between said memory and said computer means.

35 7. Apparatus in accordance with claim 4 wherein said portable bar code scanner includes removable storage media for storing information, said computer

means including means for downloading the information from said storage media.

8. Apparatus for registering items selected by a first user for subsequent communication to a second user, said items being identifiable with bar codes, said apparatus comprising:

programmable computer means providing means for receiving first information about said first user and associating said first information with an identification number;

means for scanning bar codes, said scanning means including means for obtaining said identification number and as obtained from said bar codes, second information about said items which are desired as gifts and as yet unpurchased and means for transferring said identification number and said second information to said computer means, said bar code scanning means including a portable bar code scanner;

said computer means also having means using said identification number for associating the first information with the second information, said computer means further including means for retrieving the information associated together by said associating means.

9. Apparatus in accordance with claim 8 including means for assigning a password to said first user and means using said password for accessing said first information to alter said first information.

10. Apparatus in accordance with claim 8 including means for printing said identification number in bar code format for subsequent scanning by said bar code scanning means.

11. Apparatus in accordance with claim 8 wherein
said scanning means also includes means for getting said
identification number and third information about said
items which are purchased, said transferring means also
5 transferring said third information to said computer
means.

12. Apparatus in accordance with claim 8 including
a holder for said bar code scanner and means for locking
10 said bar code scanner with respect to said holder, said
apparatus further including means for retaining an item
of value, said retaining means being in communication
with said locking means, wherein when said retaining
means retains said item of value, said locking means
15 unlocks said portable bar code scanner.

13. Apparatus for registering items selected by a
first user as possible gifts for said first user for
subsequent communication to a second user for possible
20 purchase as said gifts for said first user, said items
being identifiable with bar codes, said apparatus
comprising:

a network having a plurality of computer
terminal means, one of said computer terminal means
25 including means for receiving first information about
said first user;

means under control of said first user for
scanning the bar codes to obtain second information
about said items;

30 transfer means for communicating said second
information to said network;

said network including third means for
associating the first information with the second
information; and

35 each of said computer terminal means including
means under control of said second user for obtaining

the first and second information associated together by said third associating means.

14. Apparatus in accordance with claim 13 wherein
5 said network includes a central processing unit having a price table with prices for said items identified by the bar codes scanned by said bar code scanner, said prices being associated with said second information and
10 available to said second user through said obtaining means.

15. Apparatus in accordance with claim 14 including means under control of said second user for limiting by said prices said first and second information obtained
15 by said second user through said obtaining means.

16. A method for using a system by registering items selected by a first user as possible gifts for said first user for subsequent communication to a second user for possible purchase as said gifts for said first
20 user, said items being identifiable with item bar codes, said method comprising the steps of:

registering first information about said first user in computing means;

25 associating an identification number with said first information;

reading said item bar codes with a bar code scanner by said first user to obtain second information about said items;

30 associating the identification number with said second information;

causing said second information to be communicated to said computing means for association using said identification number with said first information; and

35 accessing by said second user said first and second information as associated by said computing means

for use for possible purchase as gifts for said first user.

17. The method in accordance with claim 16 wherein
5 the reading step includes reading a magnetically encoded card with a card reader and unlocking said bar code scanner from a holder on receiving a signal from said card reader that said card has been read.

10 18. The method in accordance with claim 17 following the magnetically encoded card reading step wherein a credit account is identified, the step of reserving a debit against unused credit in said account.

15 19. The method in accordance with claim 18 following the steps of reading bar codes to obtain second information and associating the identification number with said second information, the step of said
20 first user providing a signal indicating a desire to return said bar code scanner and then replacing said bar code scanner in said holder.

20. The method in accordance with claim 19 following said replacing step, communicating between
25 said computing means and said bar code scanner to ensure replacement of said bar code scanner and crediting said account in an amount equal to said debit.

21. The method in accordance with claim 16 wherein
30 the step of associating an identification number with said first information includes transmitting a signal from said computing means to said bar code scanner.

22. The method in accordance with claim 16 wherein
35 the step of associating an identification number with said first information includes scanning a bar code of the identification number.

23. The method in accordance with claim 16 wherein said causing step includes using the second information to separate the items chosen by said first user into
5 various categories when listing said items.

24. The method in accordance with claim 23 wherein said accessing step includes choosing one of said
various categories.

10

25. The method in accordance with claim 16 including the step of associating prices with the second information.

15 26. The method in accordance with claim 25 wherein the accessing step includes the step of limiting by price the information obtained.

27. The method in accordance with claim 16 wherein
20 said accessing step further includes printing with a printer connected to said computing means some of the second information on one of said items.

28. The method in accordance with claim 16
25 including the step of putting in said computing means third information regarding purchase when a selected item is purchased by said second user to relate the third information with the first and second information to later be available during the obtaining step so as to
30 identify when the selected item has been purchased.

29. The method in accordance with claim 28 wherein said putting step includes:

triggering a routine for receiving third
35 information about said items when purchased;

entering said identification number so that said third information can be associated with said first and second information; and

- then entering into said system third
- 5 information including identifying information and quantity purchased about said items when purchased, said third information being communicated to said computing means for association with said first and second information.

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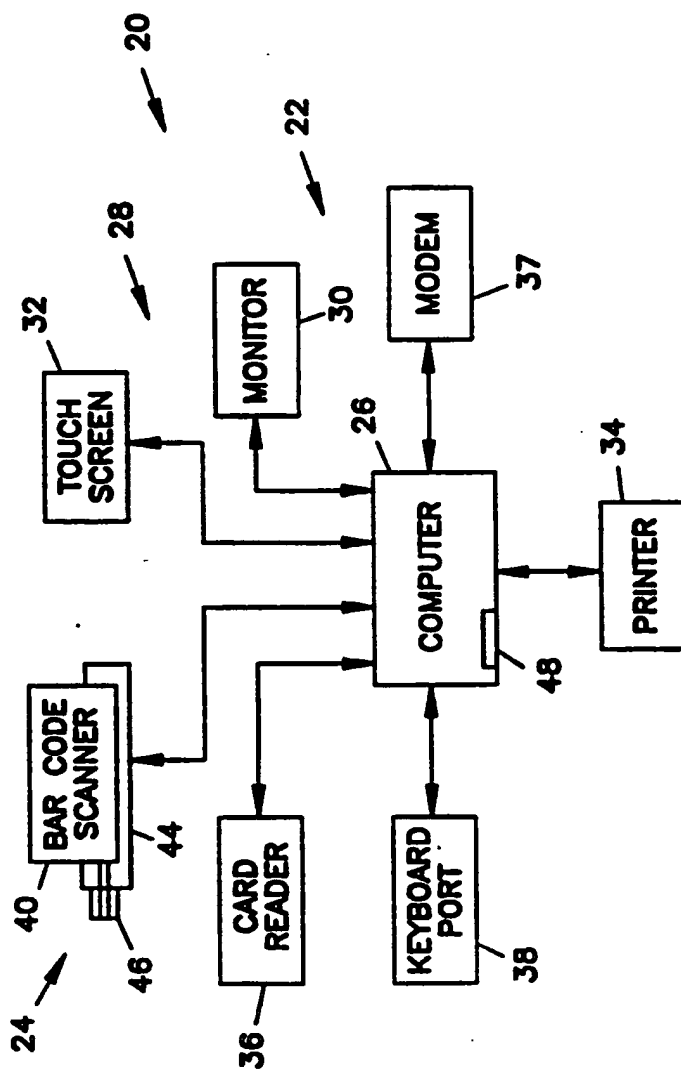


FIG. 1

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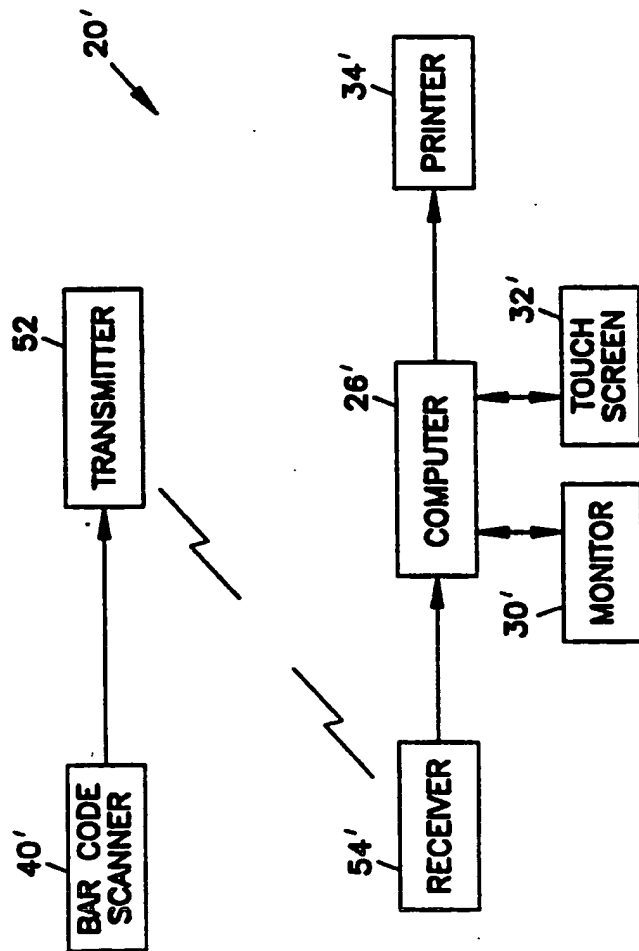


FIG. 2

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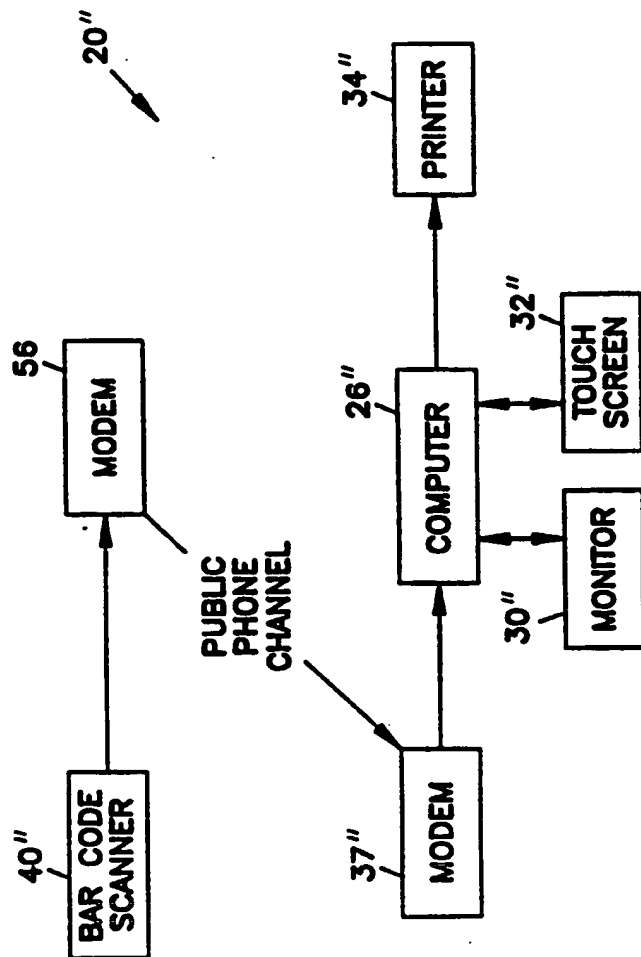


FIG. 3

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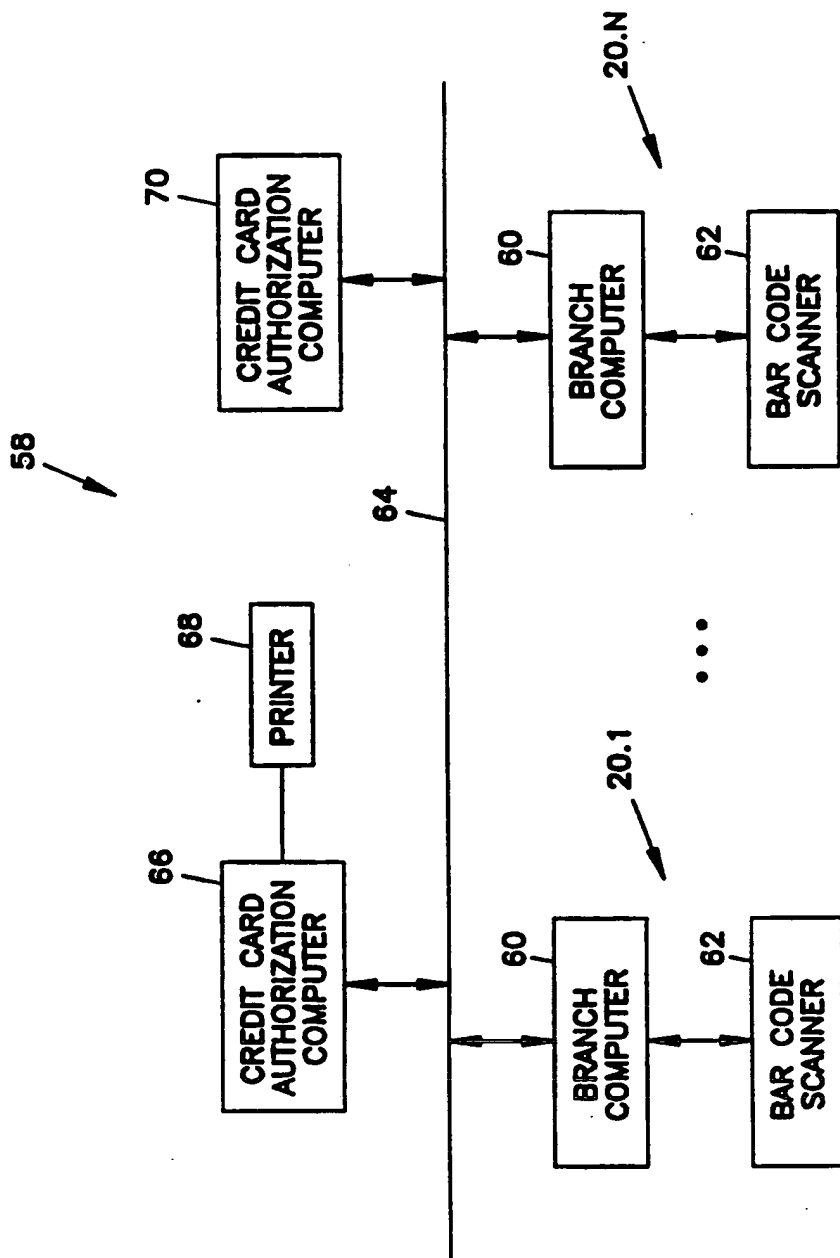


FIG. 4

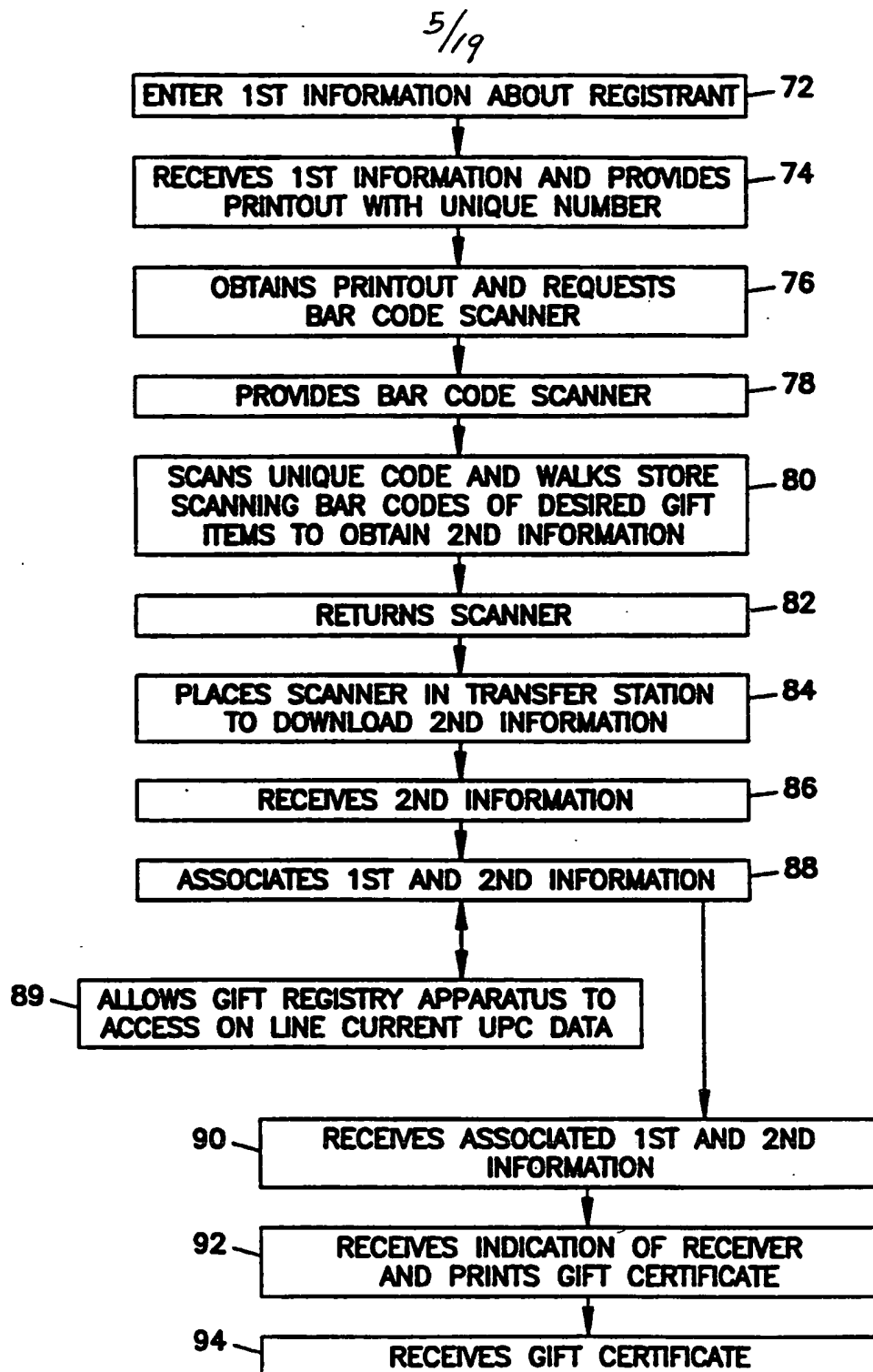


FIG. 5

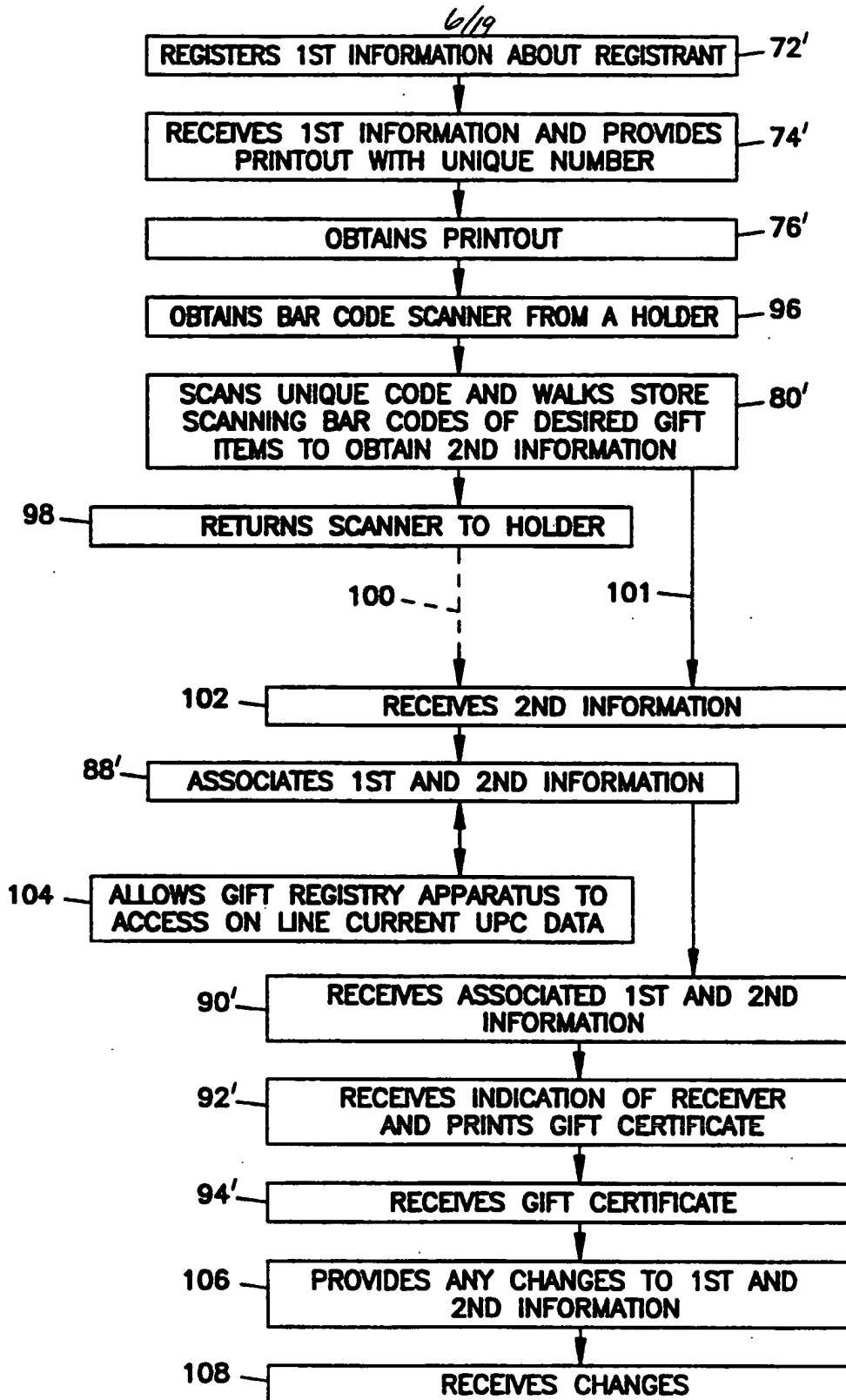


FIG. 6

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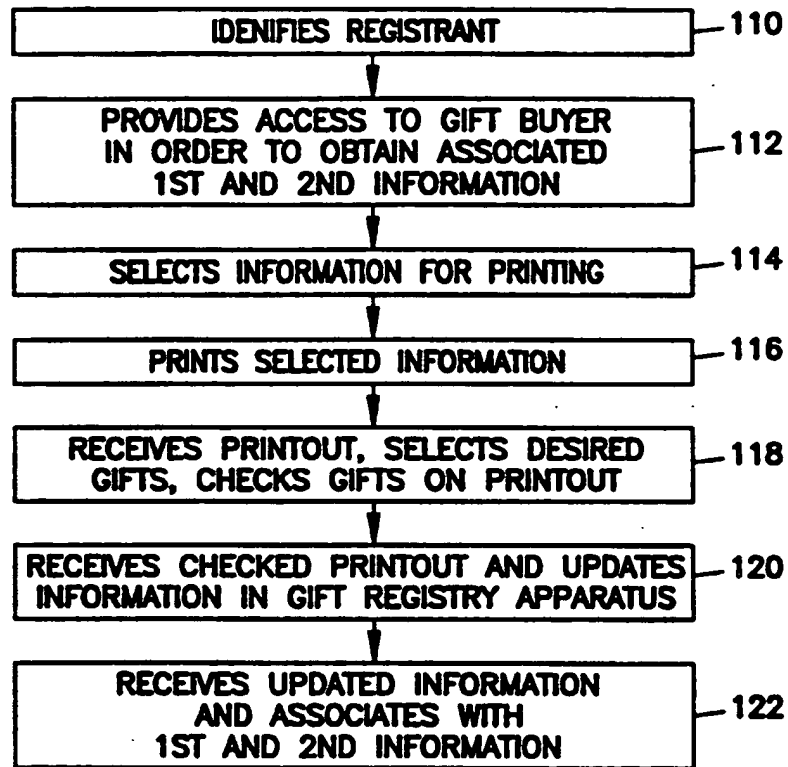


FIG. 7

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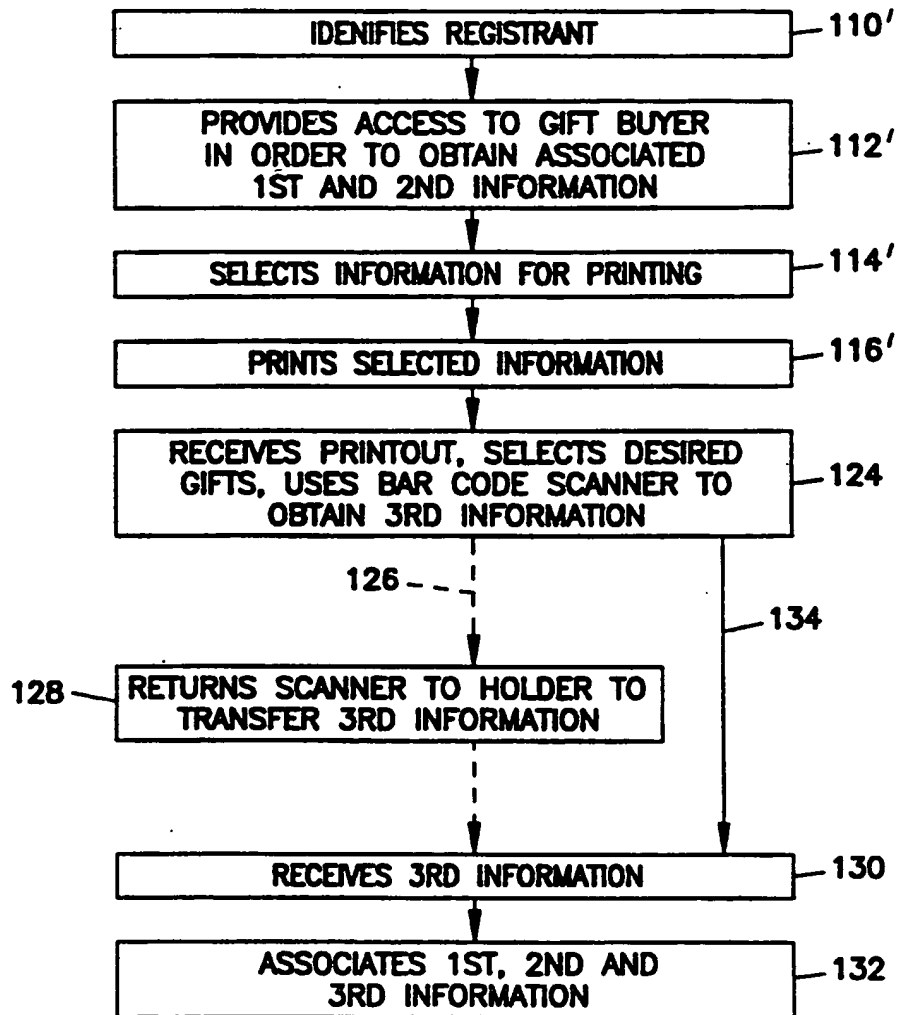


FIG. 8

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LAURA J. SMITH P. WILLIAM GEROM WEDDING JUNE 12, 1993		REGISTRANT No. 1234567890 	
<u>WANTED</u>	<u>REC'D</u>	<u>ITEM No.</u>	<u>CHECK</u>
2	1	18	[]
		<u>DESCRIPTION</u>	<u>UPC No.</u>
		TOASTER	3210987654

FIG. 9

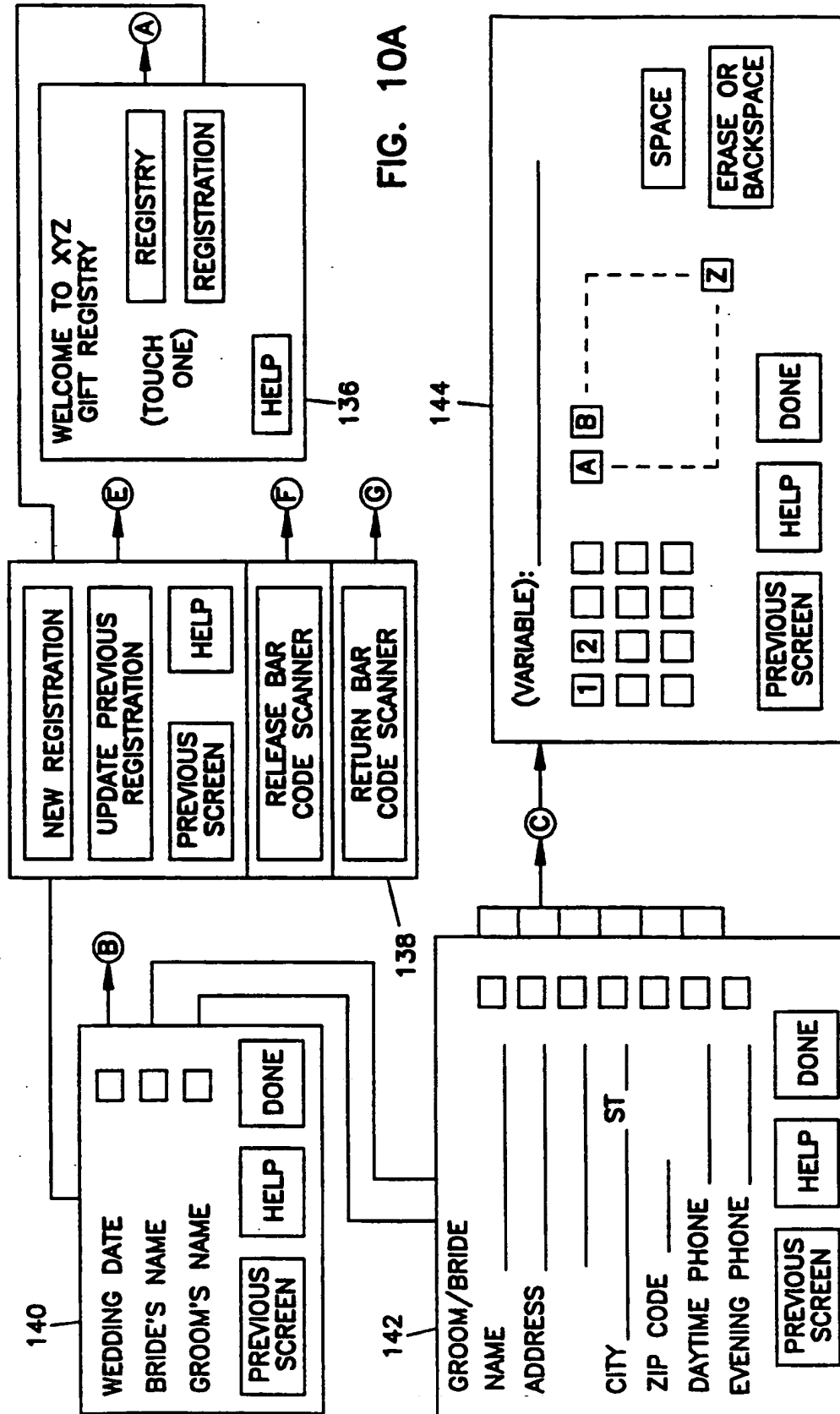
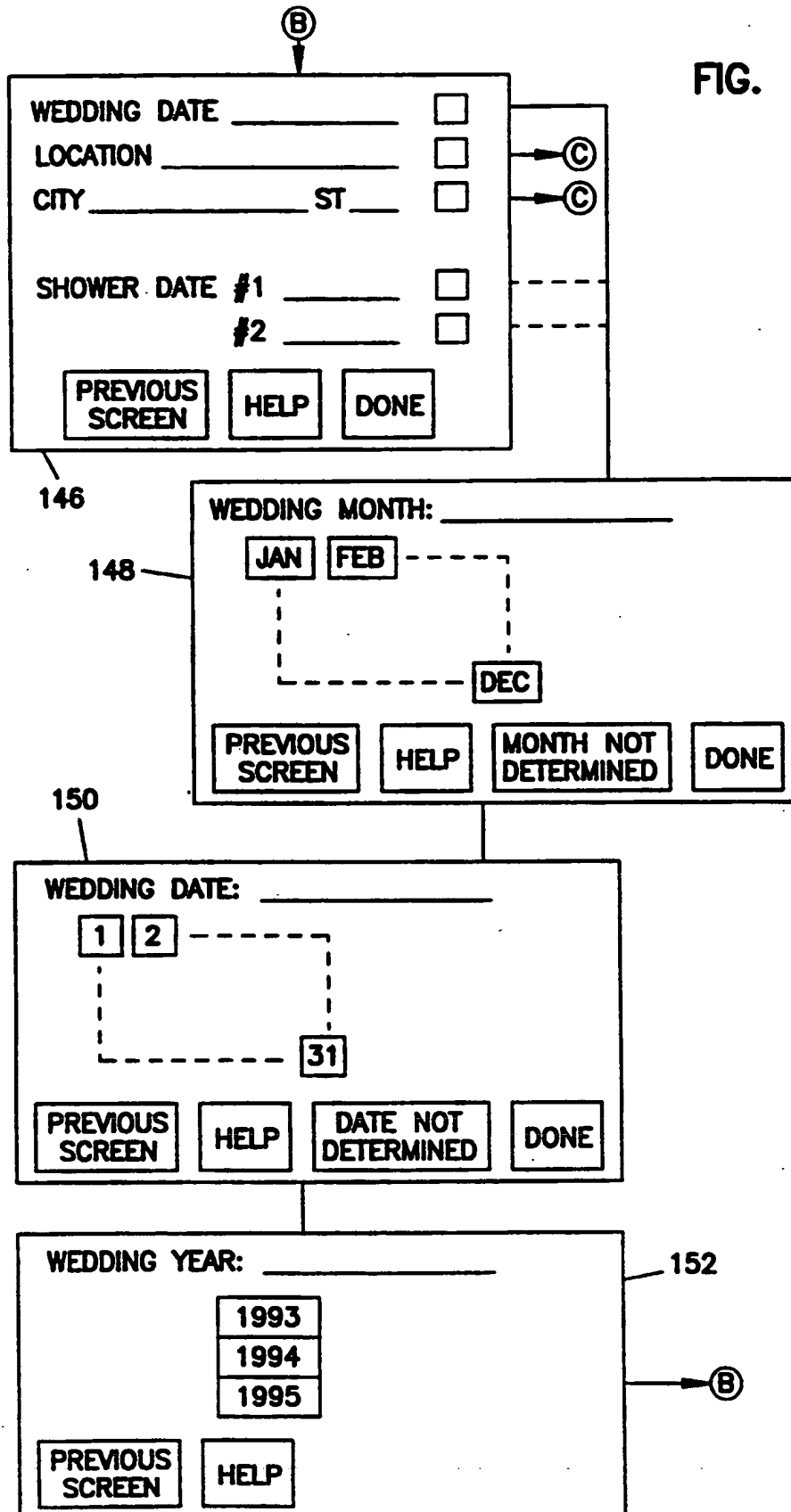


FIG. 10B



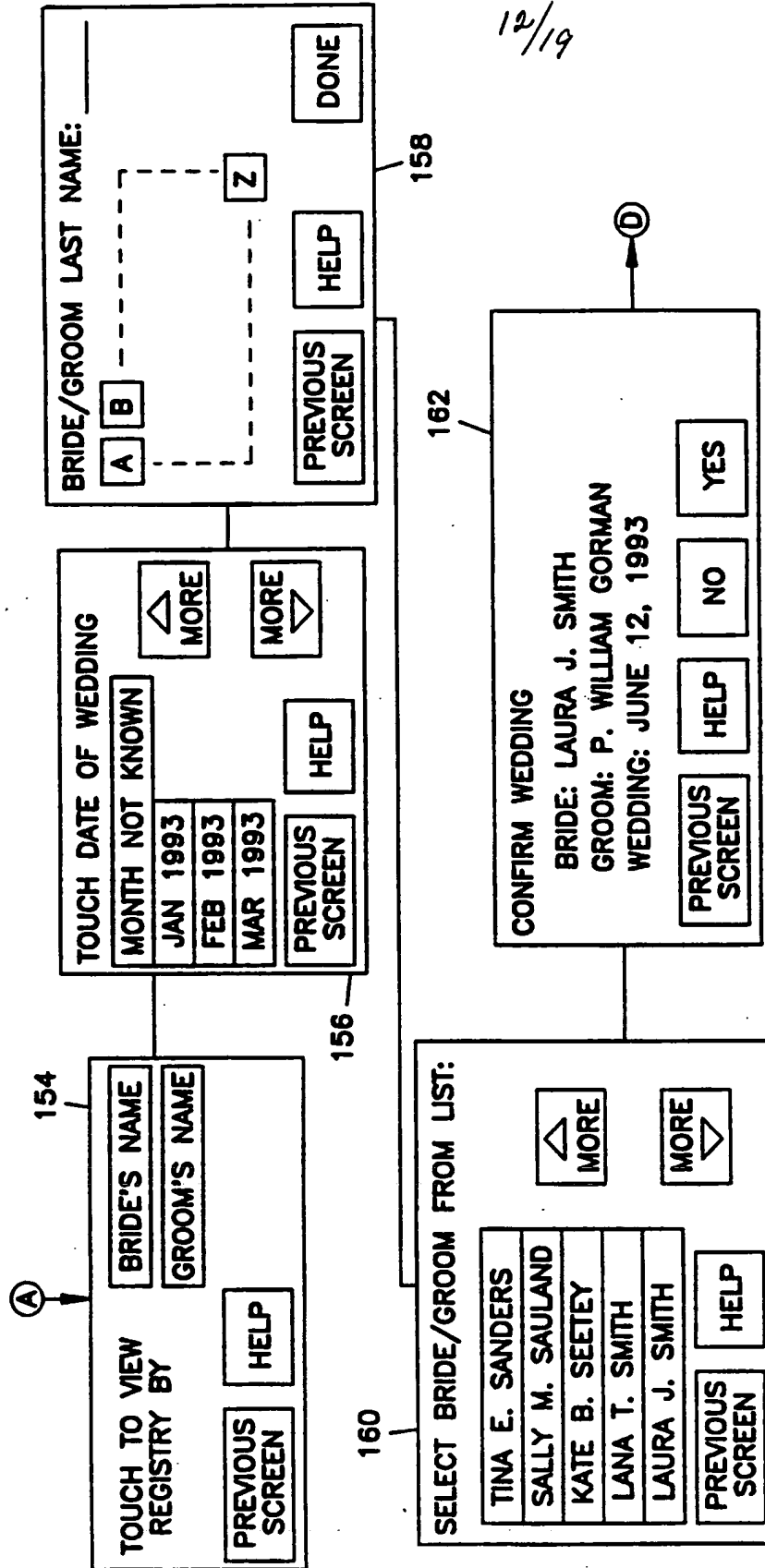


FIG. 10C

FIG. 10D

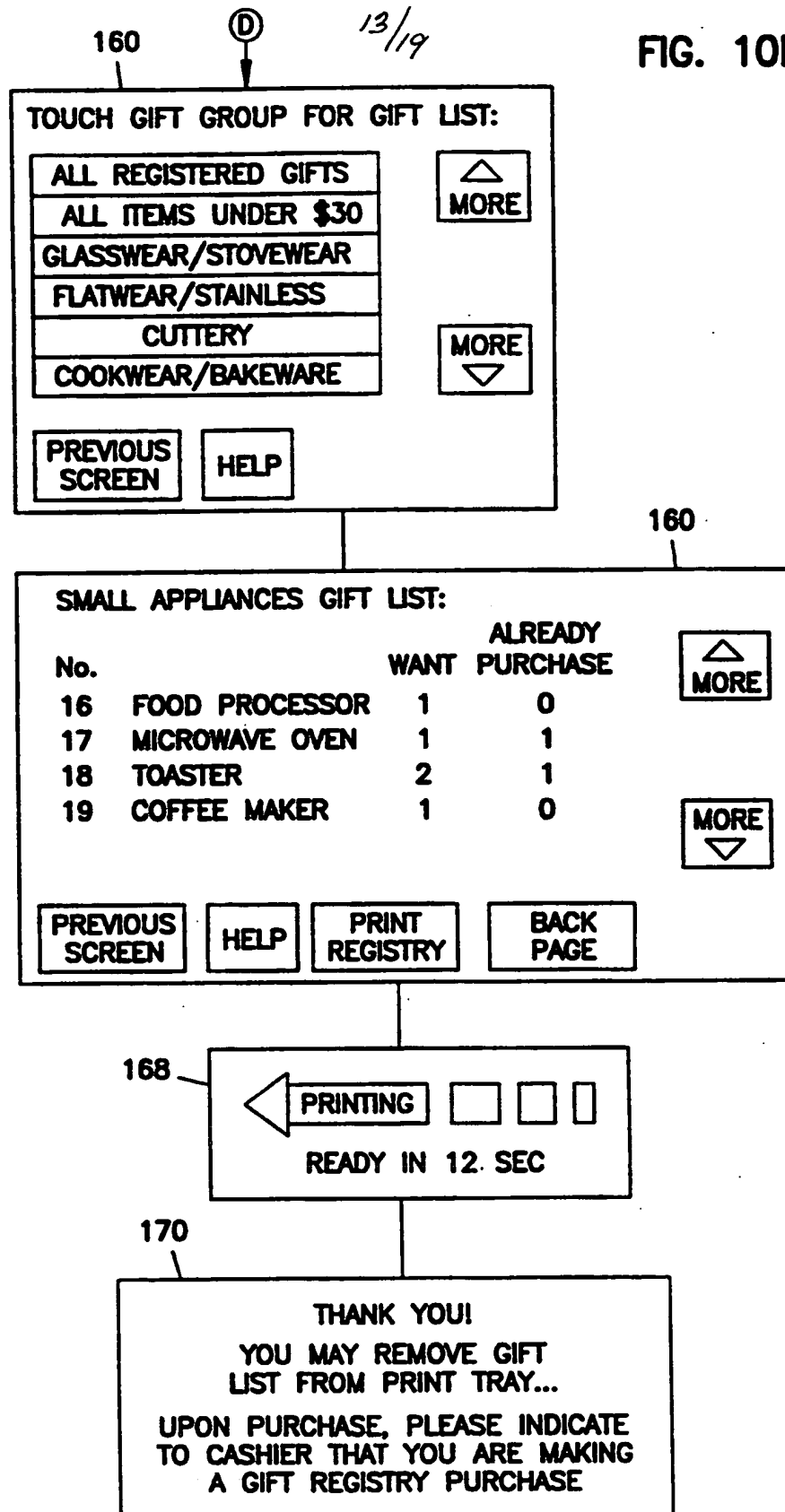
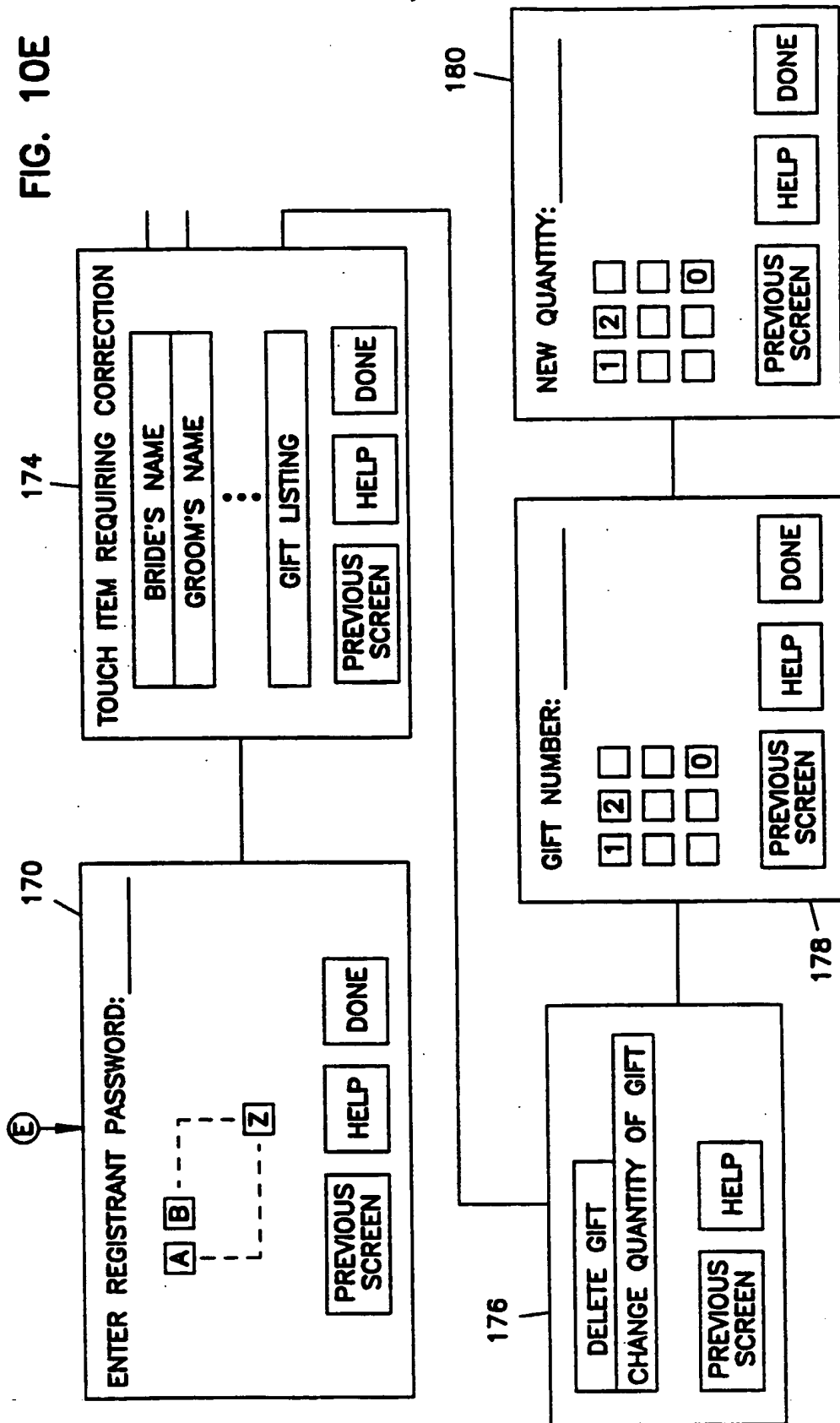


FIG. 10E



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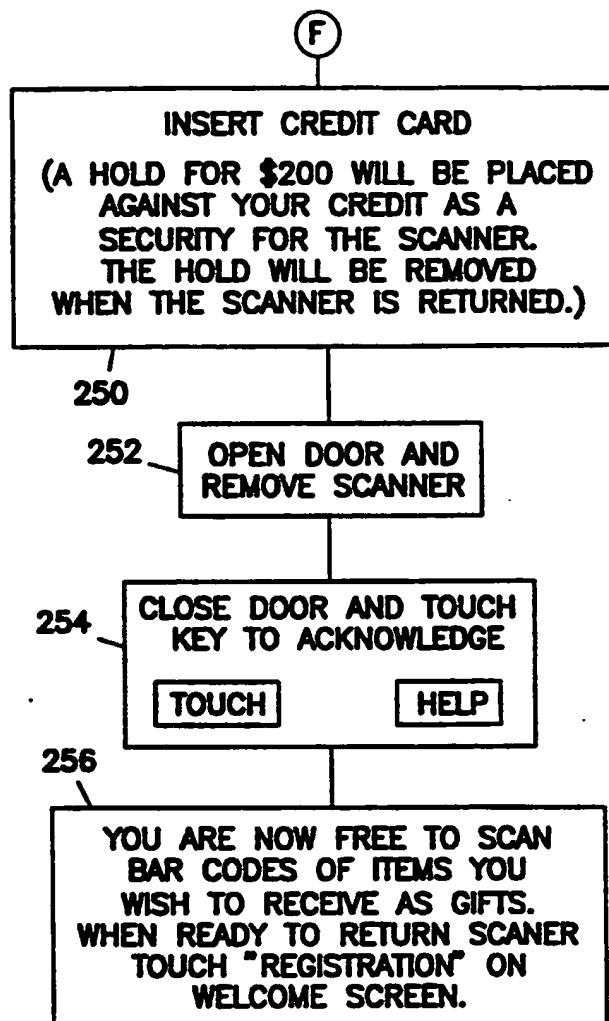


FIG. 10F

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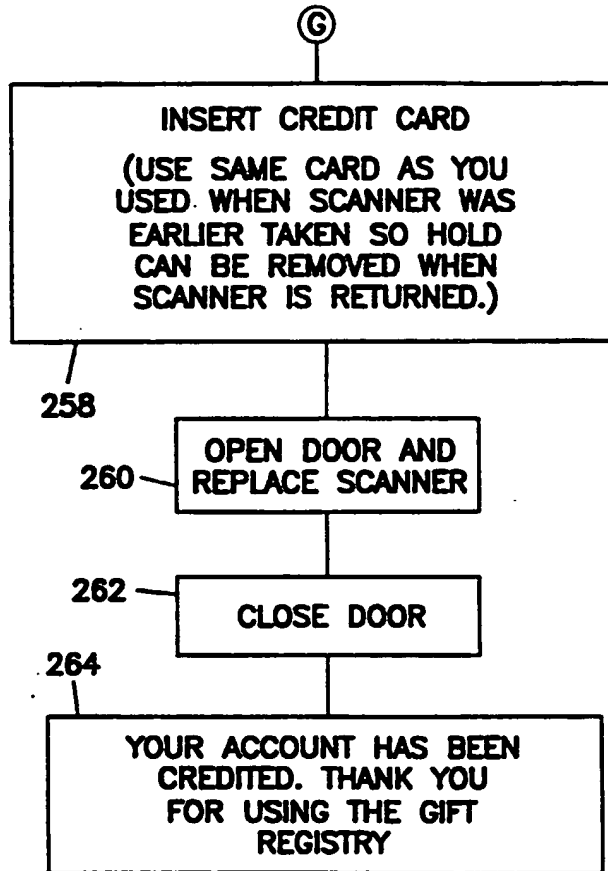


FIG. 10G

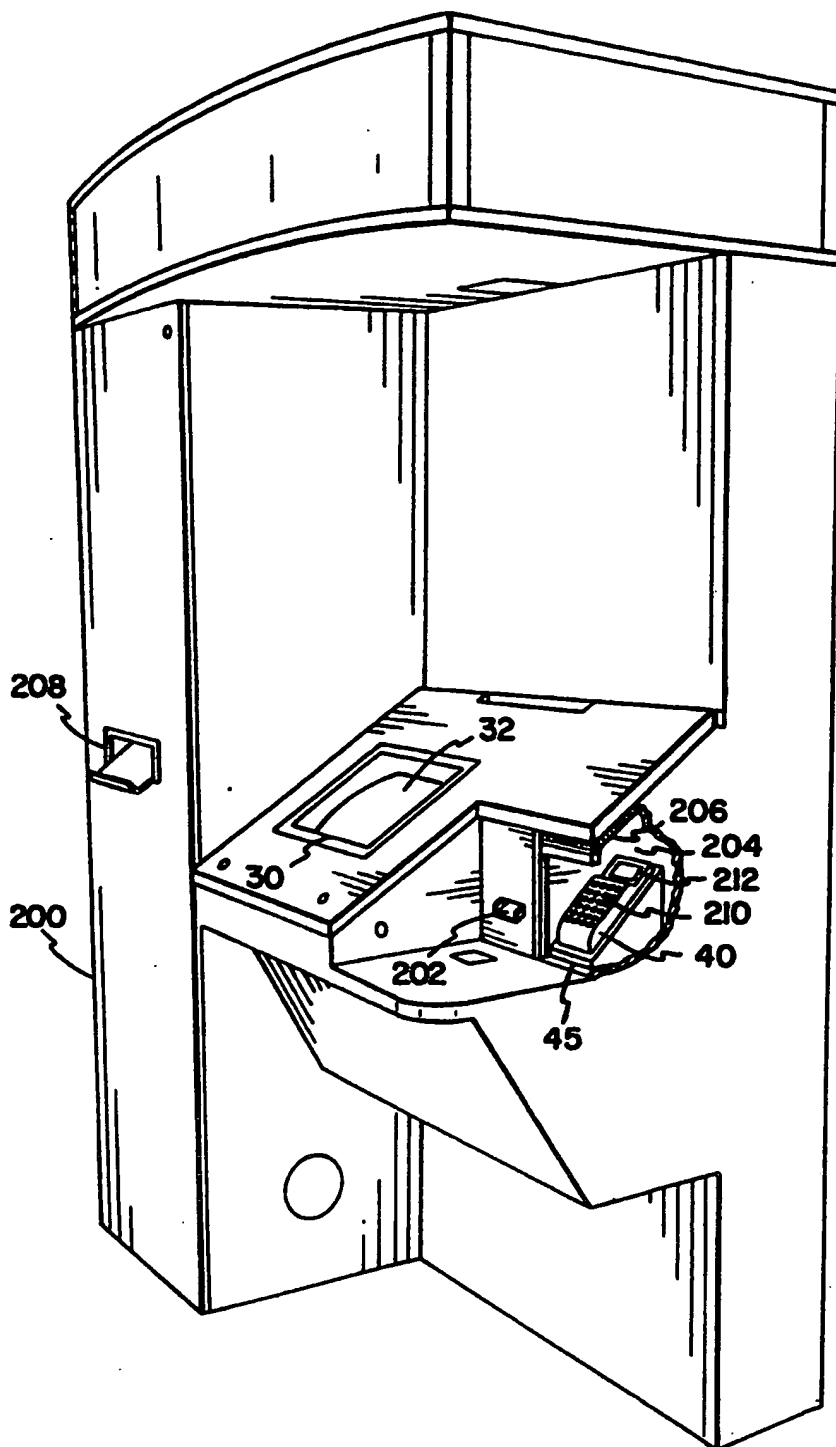


FIG. II

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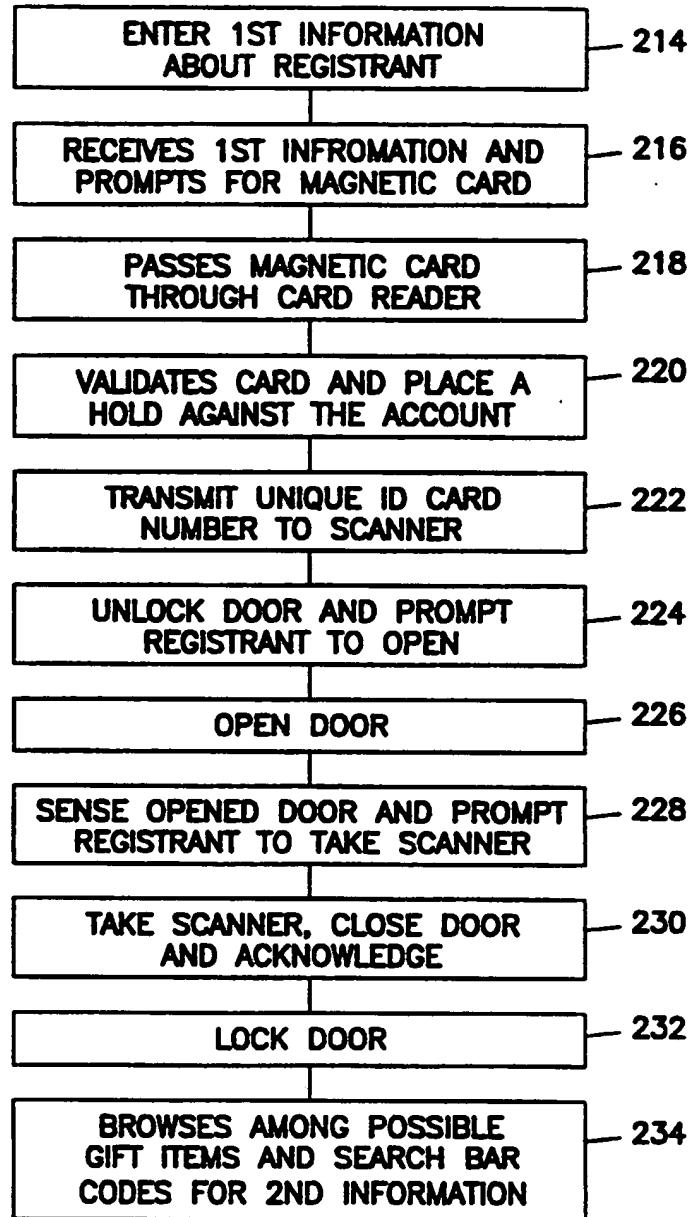


FIG. 12A

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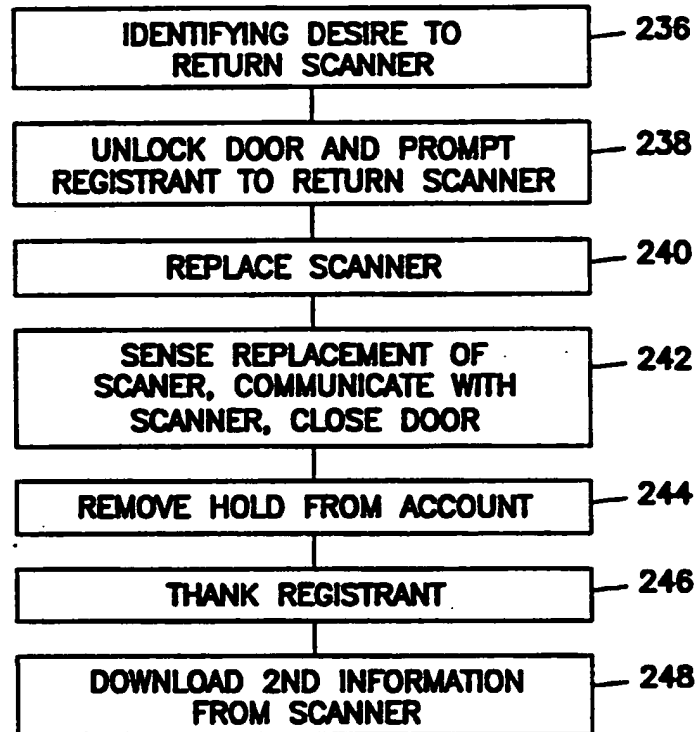


FIG. 12B

INTERNATIONAL SEARCH REPORT

international application No.
PCT/US94/05366

A. CLASSIFICATION OF SUBJECT MATTER				
IPC(5) : G06F 15/00, 15/20, 15/22 US CL : 364/401 According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) U.S. : 364/401				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	U.S.A. 5,047,614 (BIANCO) 10 SEPTEMBER 1991 (See col.1, lines 17-35 to col.4, lines 1-25)	1-7		
X	U.S.A. 4,916,441 (GOMBRICH) 10 APRIL 1990 (See col.6, lines 23-49)	1-7		
Y		8-29		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.				
<table border="0"> <tr> <td> * Special categories of cited documents: "A" document defining the general state of the art which is not considered to be part of particular relevance "E" earlier document published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed </td> <td> "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principles or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "Z" document member of the same patent family </td> </tr> </table>			* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be part of particular relevance "E" earlier document published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principles or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "Z" document member of the same patent family
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Date of the actual completion of the international search 19 July 1994		Date of mailing of the international search report OCT 13 1994		
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231		Authorized officer GAIL HAYES <i>B. Haynes</i>		
Facsimile No. NOT APPLICABLE		Telephone No. (703) 305-9711		

INTERNATIONAL SEARCH REPORTInternational application No.
PCT/US94/05366

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	U.S.A. 4,720,785 (SHAPIRO) 19 JANUARY 1988 (SEE ABSTRACT AND FIG.6 TO FIG.8)	1-29
A	U.S.A. 4,809,837 (HAYASHI) 07 MARCH 1989 (SEE ABSTRACT AND COL.3, LINE 56 TO COL.4, LINE 49)	1-29
A, P	U.S.A. 5,243,174 (VEENEMAN ET AL.) 07 SEPTEMBER 1993 (SEE ABSTRACT AND COL.3, LINE 17 TO COL.8, LINE 20)	1-29